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## CLAIMS

What is claimed is:

1. A workpiece support apparatus for centerless grinding, comprising:

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a carriage having an edge;

a rotatable spindle extending through the carriage and having an extending portion, the extending portion extending beyond the edge of the carriage;

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a regulating roller mounted on the extending portion of the spindle, the regulating roller for supporting and rotating the workpiece;

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a wheel dressing roller having a polishing outer surface and being mounted on the extending portion of the spindle distal of the carriage relative to the regulating roller; and

means for rotating the spindle which thereby rotates the regulating roller and the wheel dressing roller.

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2. The support apparatus according to claim 1, wherein the wheel dressing roller has an outer diameter which is less than the outer diameter of the regulating roller.

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3. A program on a computer usable medium for enabling a user through a user interface to control the process of dressing a grinding wheel using a wheel dressing roller supported on a spindle, the grinding wheel and the wheel dressing roller being of a centerless grinding apparatus, the program comprising:

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Sub A1

means for displaying a template which includes at least one value receptacle, the value receptacle relating to a variable in the process of dressing a grinding wheel;

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means for accepting a value from the user and displaying the value in the value receptacle.

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4. The program according to claim 3, further comprising means for changing the value in the value receptacle to increase or decrease the tolerances by using a mouse to scroll up or down a value list.

5. The program according to claim 3, further comprising means for enabling modification of the accepted value.

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6. A program on a computer usable medium for enabling a user through a user interface to control the process of dressing a regulating roller using a grinding wheel, both of a centerless grinding apparatus, the program comprising:

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means for displaying a template which includes at least one value receptacle, the value receptacle relating to a variable in the process of dressing a regulating roller;

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means for accepting a value from the user and displaying the value in the value receptacle.

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7. The program according to claim 6, further comprising means for transferring the value in the value receptacle to ???

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A2

8. The program according to claim 6, further comprising means for enabling modification of the accepted value.

5 9. A grinding apparatus capable of dressing a grinding wheel using a computer system having a user interface, the apparatus comprising:

a user interface including a means for data input and a monitor;

10 an input/output (I/O) interface board electronically connected to the user interface;

a data processor electronically connected to the I/O board;

a motion controller electronically connected to the I/O board;

15 a y-axis drive unit electronically connected to the motion controller;

a z-axis drive unit electronically connected to the motion controller;

20 a y-axis motor electronically connected to the y-axis drive unit;

a z-axis motor electronically connected to the z-axis drive unit;

a grinding wheel;

25 a rotatable wheel dressing roller;

30 the combination of the grinding wheel and the wheel dressing roller being connected to the y-axis motor and the z-axis motor such that the y- and z-axis motors can cause the grinding wheel and the wheel dressing roller to contact each other so that when the grinding wheel and the wheel dressing roller are rotating, the wheel dressing roller will smooth the surface of the grinding wheel,

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the data processor for controlling the y-axis motor to control the depth of grinding and for controlling the x-axis to control the grinding wheel and the wheel dressing roller to sweep past one another longitudinally.

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10. A centerless grinding apparatus capable of dressing a regulating roller using a computer system having a user interface, the apparatus comprising:

10 a user interface including a means for data input and a monitor;

an input/output (I/O) interface board electronically connected to the user interface;

a data processor electronically connected to the I/O board;

15 a motion controller electronically connected to the I/O board;

a y-axis drive unit electronically connected to the motion controller;

20 a z-axis drive unit electronically connected to the motion controller;

a y-axis motor electronically connected to the y-axis drive unit;

25 a z-axis motor electronically connected to the z-axis drive unit;

a grinding wheel;

a regulating roller;

30 the combination of the grinding wheel and the regulating roller being connected to the y-axis motor and the z-axis motor such that the y- and z-axis motors can cause the grinding wheel and the regulating roller to contact each other so that when the grinding wheel and the regulating roller are rotating, the grinder wheel will smooth the surface of the regulating roller,

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the data processor being designed for controlling the y-axis motor to control the depth of grinding and for controlling the x-axis to control the grinding wheel and the regulating roller to sweep past one another longitudinally.

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11. A computer system for enabling the construction of a computer program by a user using display monitor screen forms, the computer program for obtaining data to control the motions of a centerless grinding apparatus, the computer system also for compiling the obtained data so that the grinding machine performs as the user specifies, the computer system comprising:

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means for displaying a program screen form having at least one value receptacle which relates to a variable in the process of grinding with a centerless grinding apparatus;

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means for accepting a value from the user and displaying the value in the value receptacle;  
means for sending the accepted value to a computer program for operating the grinding apparatus;  
and

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means for compiling the computer program containing the accepted value to a state such that the computer program may be understood by the grinding apparatus.